



This report provides 2019/2020 data* on asthma prevalence and hospitalization in Bexar County, and highlights differences in asthma according to age, sex, race/ethnicity, region, and socioeconomic factors. Socioeconomic and racial/ethnic disparities are common in Bexar County, and lead to a disproportionate burden of asthma among communities that have long been exposed to social disadvantage and racial inequities.

More than 25 million Americans have asthma¹, and the per-person medical cost of asthma is more than \$3,000/year. Aside from direct costs such as medicine, hospital stay, and urgent care visits, indirect costs such as missed work, school absenteeism, and lost productivity have a major collective impact on the livelihood of Americans.²

Environmental factors that can trigger and exacerbate asthma include airborne allergens (e.g., pollen, mold, dust mites), occupational exposures, air pollution, and tobacco smoke (firsthand, secondhand, and thirdhand smoke).

Factors that contribute to the *development* of asthma are multi-factorial and complex. However, what is well-known is that upstream determinants at multiple levels³ have an impact:

- Structural determinants (e.g., systemic racism, residential segregation, discriminatory policies).
- Social determinants (e.g., education level, employment status and type, access to health care).
- Environmental determinants (e.g., exposure to tobacco smoke, pollution, built environment, housing quality).

Key Findings from this Report

- Approximately 12% of Bexar County adults surveyed in 2020 reported ever having asthma, compared to 11% across Texas Overall.
- Bexar County's asthma hospitalization rate is consistently higher than that of Texas year after year.
- Among Bexar County's pediatric population, male children are hospitalized for asthma at higher rates than female children. Among adults, however, females are hospitalized for asthma at considerably higher rates than males. This is in line with nationally observed trends that males experience a greater asthma burden in childhood while females experience a greater asthma burden in adulthood.
- Racial/ethnic disparities in Asthma persist in Texas and Bexar County. In Texas, 17% of Non-Hispanic (NH)-Black adults surveyed in 2020 reported having asthma, compared to 13% of NH-White adults and 10% of Hispanic/Latino Adults. In Bexar County, NH-Blacks continue to experience a higher rate of asthma hospitalization in comparison to NH-Whites and Hispanic/Latinos, a trend seen year after year.
- Within Central San Antonio, zip codes 78201, 78202, 78203, 78220, 78228, 78229, and 78237 consistently have a high burden of asthma hospitalization, particularly among the pediatric population. However, hospitalization rates in these zip codes improved when comparing 2018 to 2019, except for 78220 where the asthma hospitalization rate worsened from 2018 and 2019.

**NOTE: The collection of data and surveying of the population (by any agency or organization) in 2020 may have been affected in various ways due to the onset of the pandemic and associated consequences (e.g., lockdown, office closures, halting/delaying of data collection efforts). All 2020 data should be interpreted with caution and not used to make definitive conclusions in comparison to previous years. The eventual release of 2021 data should better and more consistently identify any health trends resulting from the effects of the pandemic.*



Overall Asthma Status

The prevalence of self-reported adult asthma in Bexar trended upward from 2017 till 2019 but then dropped in 2020, falling below the prevalence of asthma across Texas overall (**Figure 1**). Examining the most recent years of inpatient hospitalization data, however, shows that the inpatient hospitalization rate in Bexar County is consistently higher in comparison to the rate for Texas (**Figure 2**). For both Bexar County and Texas, however, inpatient hospitalization rates dropped between 2019 and 2020.

With the COVID-19 pandemic overwhelming many hospital systems, decreased rates in 2020 could be attributed to changes in health care seeking behaviors due to fear of being exposed to the virus, concerns about possible extended wait times, or a sense of civic responsibility to avoid using health care services that others may need more. Additionally, COVID-19 restrictions and increased mask wearing for protection limited the exposures to asthma triggers such as pollen, airborne allergens, and respiratory illnesses such as the flu.³

Figure 1. Percent (%) of Surveyed Adults Reporting They Ever Had Asthma, Bexar County

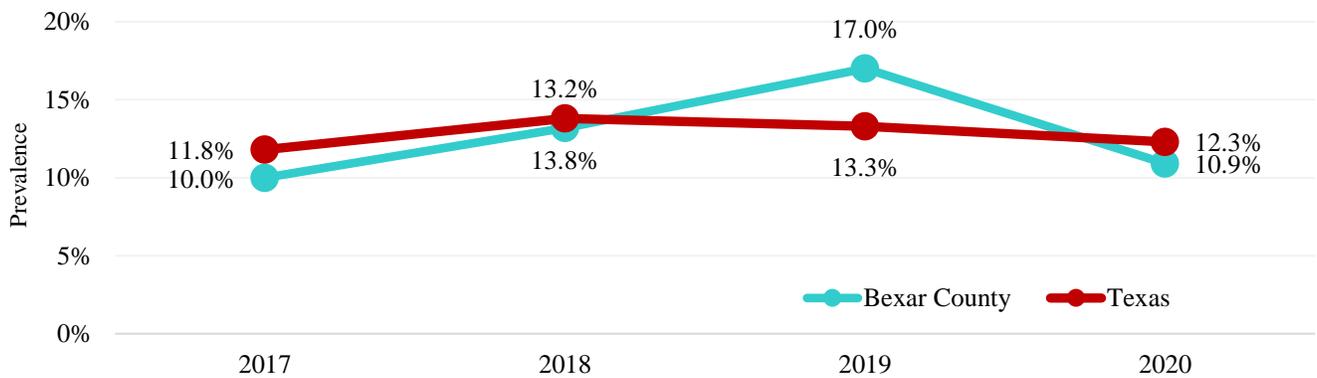
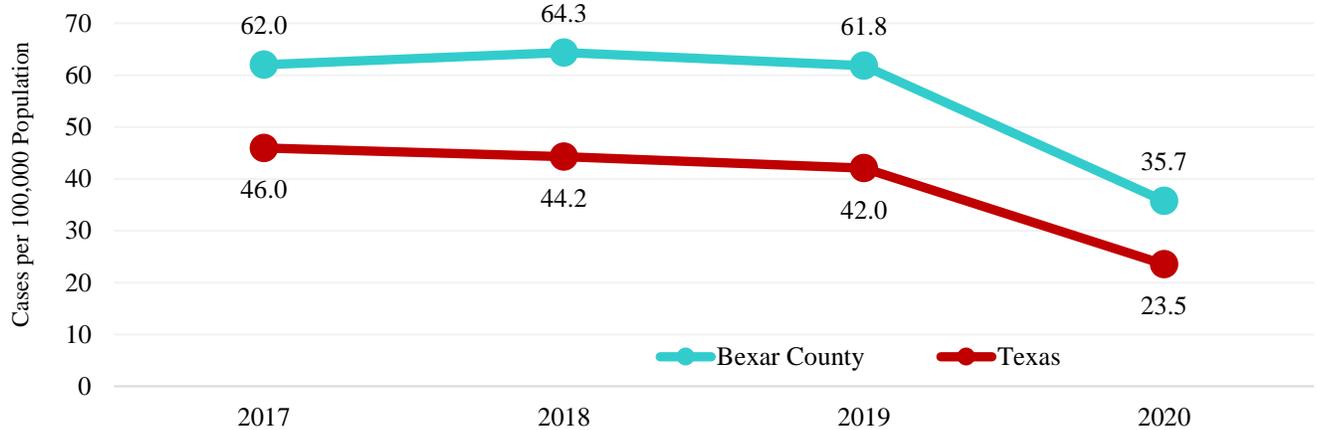


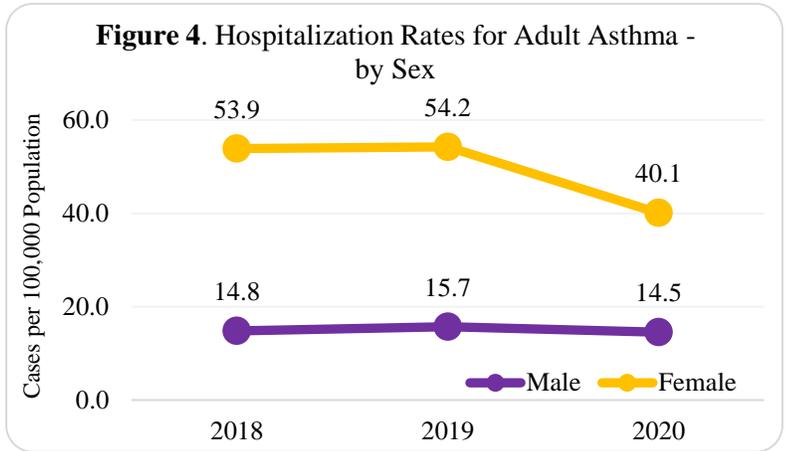
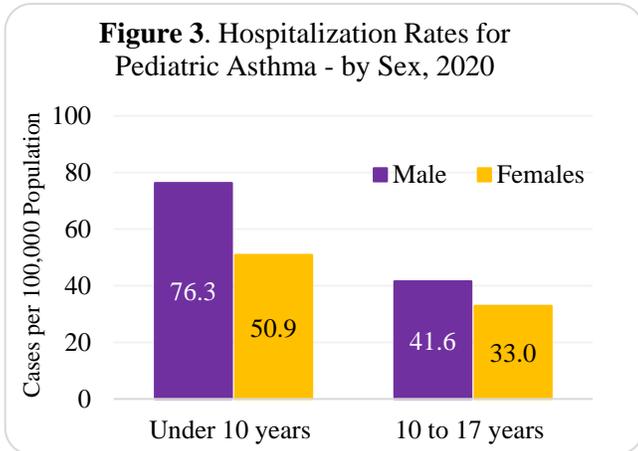
Figure 2. Inpatient Hospitalization Rate for Asthma (All-ages) as Primary Diagnosis



Asthma Status - by Age and Sex

More common in children than in adults, asthma is the leading chronic disease in children nationally. As of 2017, 1 in 12 children in the US were estimated to have asthma. Among children, asthma prevalence and mortality are more common in males than females. However, this trend reverses in adulthood: adult females more commonly have asthma, and they are at higher risk of dying from asthma compared to adult males.

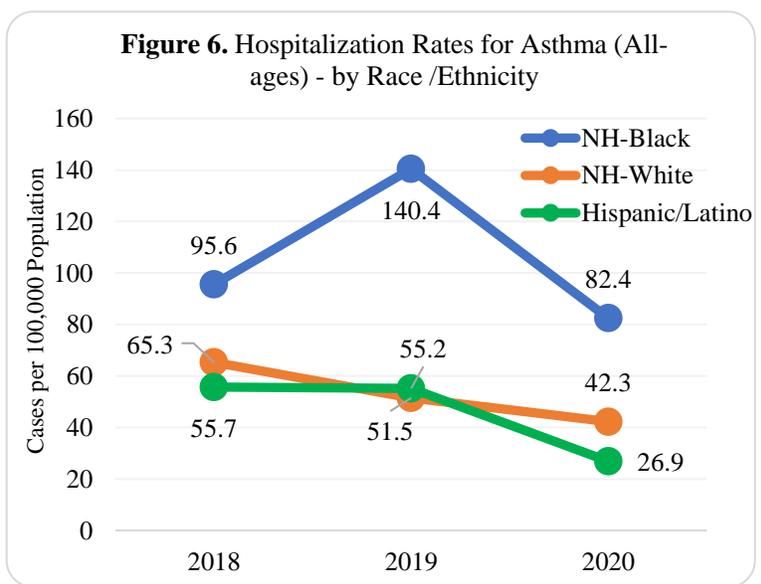
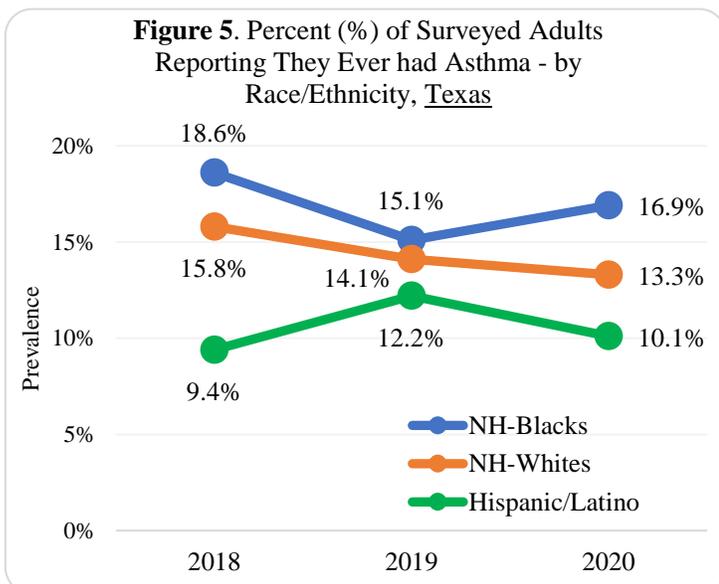
Hospitalization data for Bexar County reveals similar trends. Male children in Bexar County are hospitalized for asthma at higher rates than female children (**Figure 3**). The opposite is seen for adults: adult females are hospitalized for asthma at a notably higher rate than adult males, a trend that is consistent over time. However, the asthma hospitalization rate for adult females dropped between 2019 and 2020 while the rate for males remained relatively unchanged (**Figure 4**).



Asthma Status - by Race/Ethnicity

Racial/ethnic disparities in asthma are also common and well-documented. Non-Hispanic (NH) Black individuals (particularly NH-Black women) in the US die from asthma at a rate three times higher than other race/ethnic groups. NH-Black children in the US have the highest prevalence of Asthma. In addition, asthma-related emergency department visits are nearly 5 times higher for NH-Black patients compared to White patients.⁴

Data on adult asthma prevalence disaggregated by race/ethnicity is suppressed at the Bexar County level (due to small sample size). However, data for Texas overall shows that among the 3 major race/ethnic groups, NH-Blacks adults generally report the highest asthma prevalence and Hispanic/Latinos report the lowest. (**Figure 5**). These racial/ethnic disparities also manifest when looking at asthma hospitalization. In Bexar County, the NH-Black group consistently experiences the highest asthma hospitalization rate. However, this rate has fluctuated between 2018-2020, (**Figure 6**).



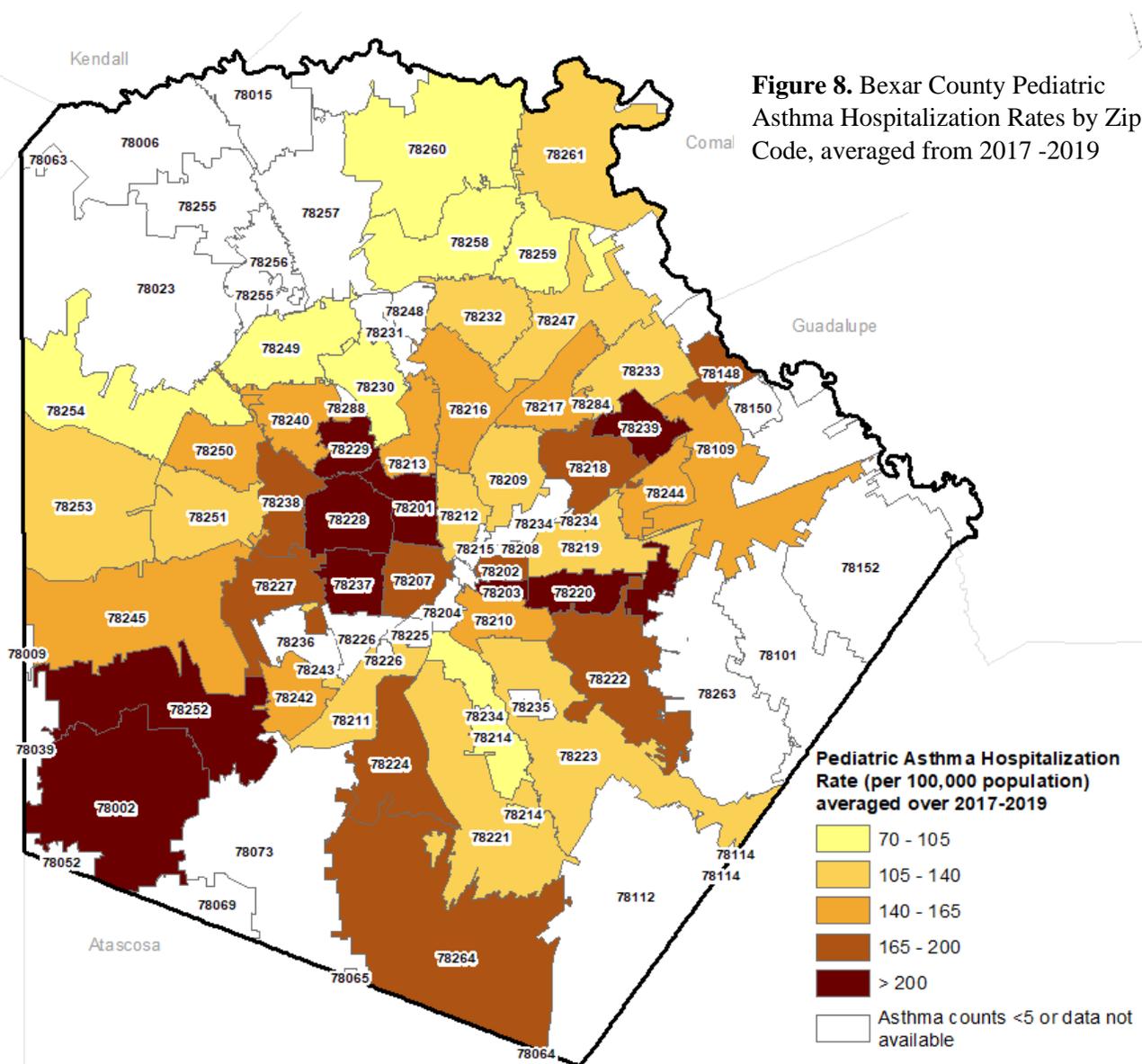
(*note for Figure 5: numerous studies show Puerto Ricans have a higher prevalence of asthma than other Hispanic subgroup or any other racial/ethnic group, however data on Hispanic subgroups is not available from the data source. Combining all subgroups into one may lead to high levels in certain subgroups being masked).



Asthma Status – by Zip Code

Figure 8 shows pediatric asthma hospitalization rates averaged over 2017, 2018, and 2019. Zip codes in darkest orange and red colors are those that had high rates after averaging three years of data. Zip codes with higher pediatric asthma hospitalization rates are more common in central and southern parts of Bexar County.

In particular, zip codes 78201, 78202, 78203, 78220, 78228, 78229, 78237, 78239, 78252, and all have 3-year averaged asthma hospitalization rates that exceeds 200. In other words, these regions annually experience child asthma hospitalizations at a rate of at least 200 children per every 100,000.



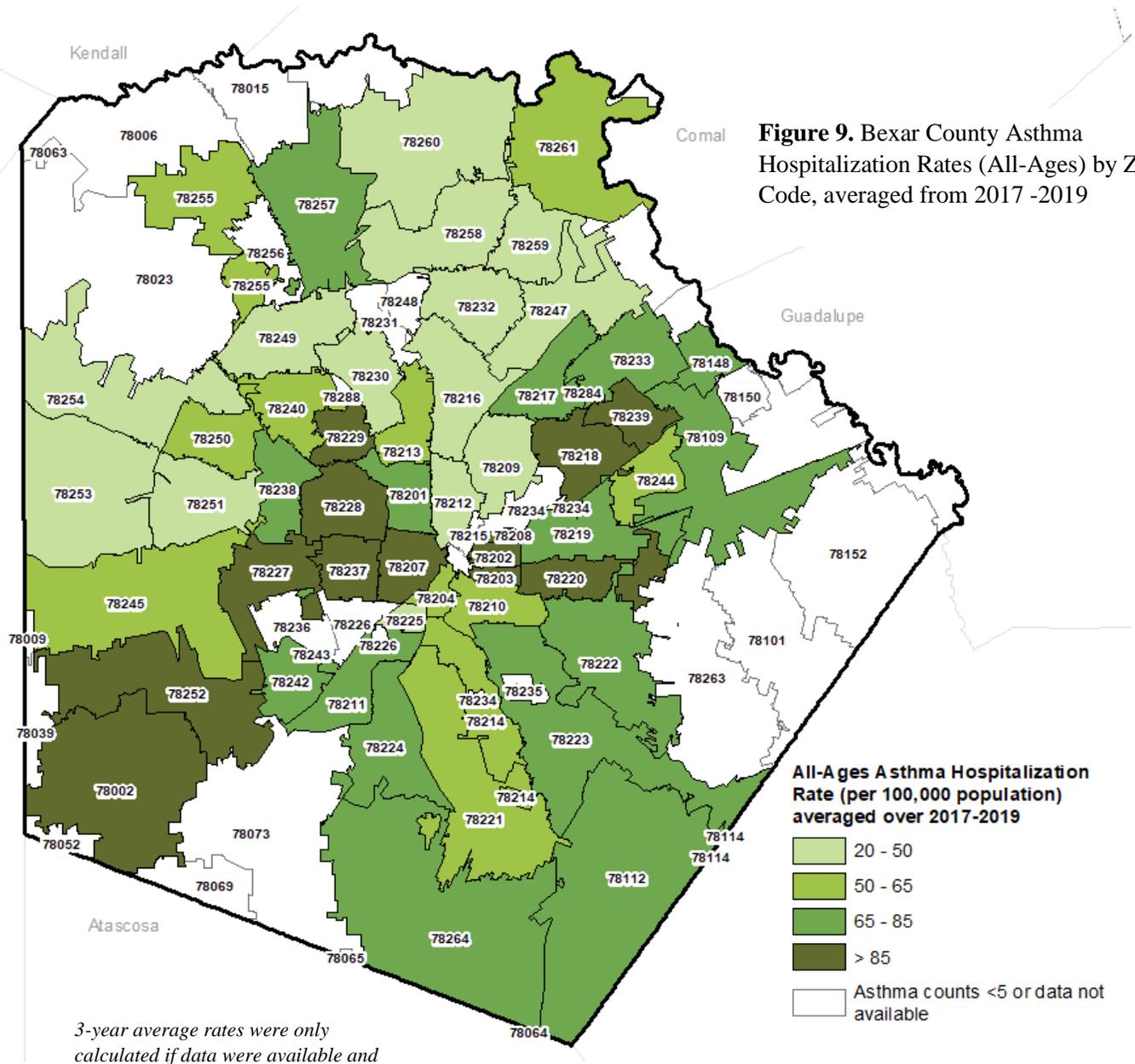
3-year average rates were only calculated if data were available and non-suppressed for at least 2 of the 3 years being averaged.



Figure 9 shows asthma hospitalization rates averaged over 2017, 2018, and 2019. Zip codes in darkest green are those that had high rates after averaging three years of data. There are clusters of zip codes with higher asthma hospitalization rates in the east, central, and southwest regions of Bexar County.

In particular, zip codes 78002, 78202, 78203, 78207, 78208, 78218, 78220, 78227, 78228, 78229, 78237, 78239, and 78252 all have 3-year averaged asthma hospitalization rates that exceeds 85. In other words, these regions annually experience asthma hospitalizations at a rate of at least 85 people per every 100,000.

Figure 9. Bexar County Asthma Hospitalization Rates (All-Ages) by Zip Code, averaged from 2017 -2019



3-year average rates were only calculated if data were available and non-suppressed for at least 2 of the 3 years being averaged.



Figure 10 shows the percent change in all-ages asthma hospitalization rate between 2018 and 2019 for each zip code. Zip codes shown in green improved in their asthma hospitalization status, meaning that their hospitalization rates decreased by 5% or more between 2018 and 2019. Zip codes shown in yellow remained unchanged in their hospitalization status, meaning that their hospitalization change between 2018 and 2019 was within a 5% margin. Zip codes shown in red worsened in their asthma hospitalization status, meaning that their hospitalization rates increased by 5% or more between 2018 and 2019.

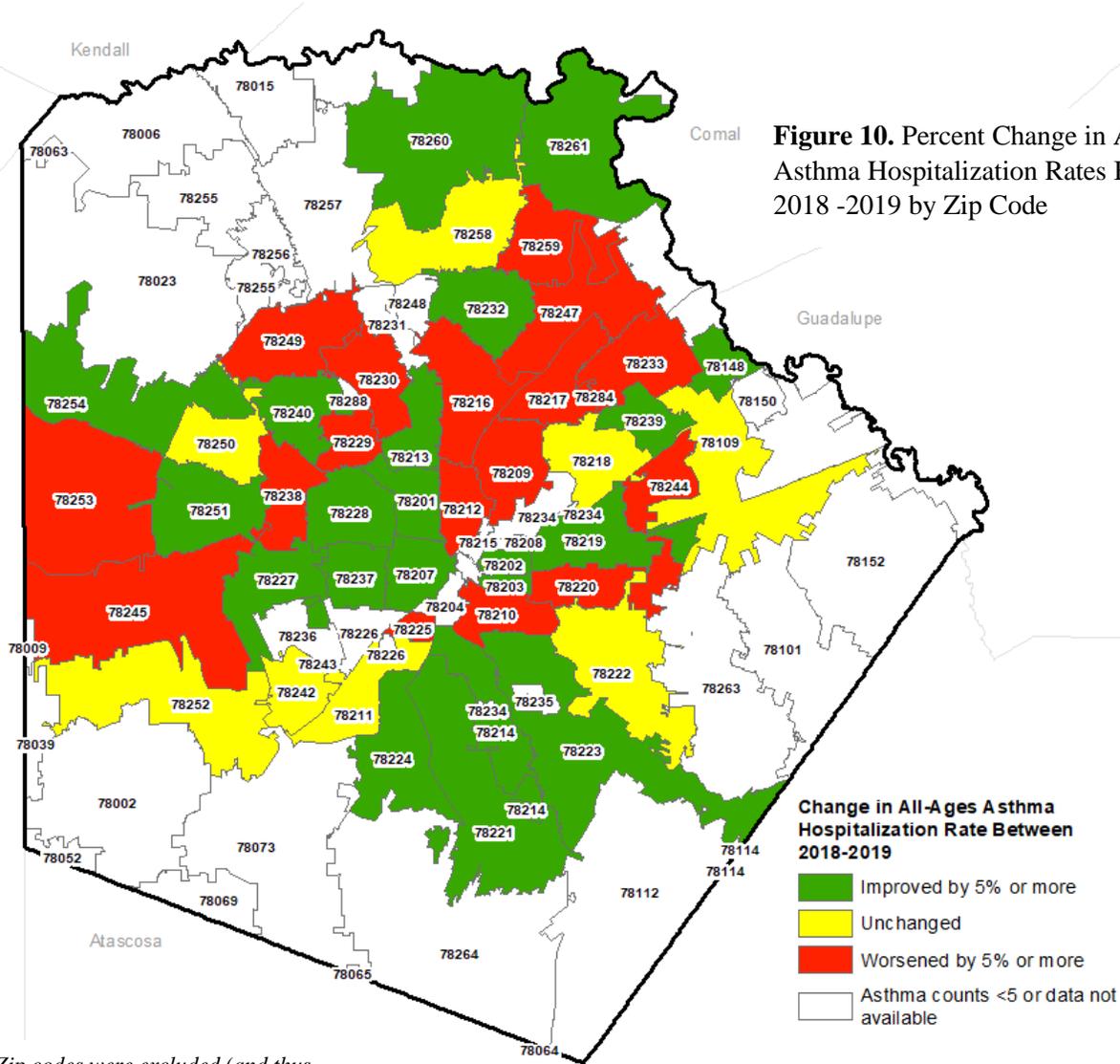


Figure 10. Percent Change in All-Ages Asthma Hospitalization Rates Between 2018 -2019 by Zip Code

Zip codes were excluded (and thus appear white) if data was unavailable for either 2018 or 2019.



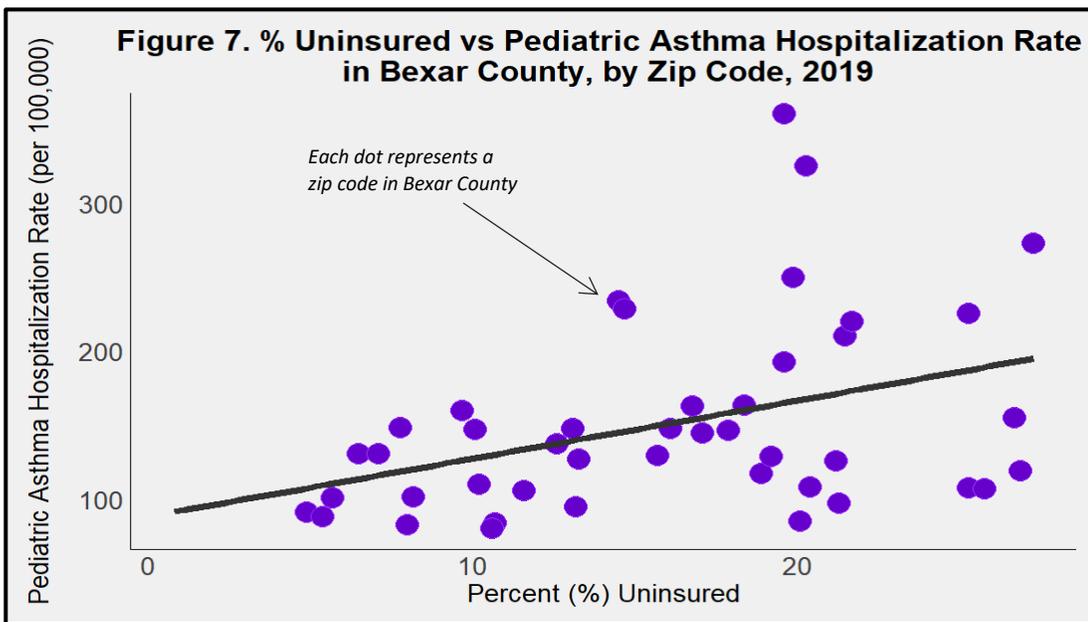
Socioeconomic Factors Related to Asthma

The Asthma and Allergy Foundation of America (AAFA) conducted comprehensive research and recently produced an asthma report highlighting several risk factors that strongly influence variation in asthma rates across US cities.⁴ These risk factors include *poverty, lack of health insurance, smoking laws, poor air quality, asthma medication use, pollen, and access to specialists.*

Many of these risk factors are highly relevant in San Antonio/Bexar County. For example, AAFA ranked cities from the top 100 most populated Metropolitan Statistical Areas (MSAs) based on each of each risk factor, and San Antonio ranked 7th out of 100 for having the highest number of uninsured residents. Access to health care plays an important role in managing asthma symptoms, preventing exacerbations, and promoting better quality of life – and inadequate health insurance coverage is one of the most profound barriers to quality health care.

A national study conducted by AAFA showed that the majority of asthma patients who had difficulty paying for health care were those with no or partial health coverage.⁵ In addition, persons with asthma that did not have health insurance visited emergency rooms more than those with health insurance.⁶ Lack of insurance can directly impact asthma, or there may be other factors related to lack of insurance (e.g. employment type and status) that have a more direct impact.

Figure 7 shows that lack of insurance is positively correlated with pediatric asthma hospitalization at the zip code level: the higher the % uninsured in a zip code, the more likely that pediatric hospitalization rate in that zip code will be high.



In other terms, zip codes characterized by higher proportions of people uninsured also tend to be characterized by higher pediatric asthma hospitalization rates, and zip codes with lower proportions of people uninsured also tend to be characterized by lower pediatric asthma hospitalization rates.

Report produced by San Antonio Metro Health’s Informatics Unit. Authors: Maciel Ugalde, PhD; Golareh Agha, PhD.



Data sources: Asthma prevalence: Behavioral Risk Factor Surveillance System Survey Data, Centers for Disease Control and Prevention. Asthma prevalence by census tract: 500 Cities Project (CDC), 2017 data released in 2019. Asthma hospitalization: Texas Hospital Inpatient Discharge Public Use Data File, Texas Department of State Health Services; asthma as primary diagnosis ICD-10 codes used: J45. Insurance status by zip code: US Census American Community Survey (ACS) 2019 5-year estimates, table S2701. Population denominators: US Census American Community Survey (ACS): Tables B01001 and DP05 (2017, 2018, or 2019 data used where appropriate) and 2020 Vintage Population Estimates. **References:** **1)** CDC.gov. (2019). CDC - Asthma. <https://www.cdc.gov/asthma/default.htm>. **2)** Nurmagambetov et al. The Economic Burden of Asthma in the United States, 2008-2013. *Ann Am Thorac Soc.* 2018; 15 (3): 348. **3)** Asthma and Allergy Foundation of America. *Asthma Capitals 2021: The Most Challenging Places to Live with Asthma.* <https://www.aafa.org/asthma-capitals/>. **4)** Asthma and Allergy Foundation of America, (2020). [Asthma Disparities in America: A Roadmap to Reducing Burden on Racial and Ethnic Minorities]. [aafa.org/asthmadisparities](https://www.aafa.org/asthmadisparities). **5)** Asthma and Allergy Foundation of America. *My Life with Asthma, 2017.* <https://www.aafa.org/my-life-with-asthma-report/>. **6)** CDC. *Asthma Facts: CDC’s National Asthma Control Program Grantees.* July 2013. http://www.cdc.gov/asthma/pdfs/asthma_facts_program_grantees.pdf.